## Geometry (Q 4, Paper 2)

## Lesson No. 5: Enlargements

## 2007

4 (c) The triangle ocd is the image of the triangle oab under an enlargement with centre $o$. $|o a|=4,|a c|=7 \cdot 2$ and $|c d|=7$.

(i) Find the scale factor of the enlargement.
(ii) Find $|a b|$.
(iii) The area of the triangle $o a b$ is 4.5 square units.

Find the area of the triangle ocd.

## 2006

4 (c) (i) Construct a triangle $a b c$ in which $|a b|=6.5 \mathrm{~cm},|b c|=2.5 \mathrm{~cm}$ and $|a c|=6 \mathrm{~cm}$.
(ii) Construct the image of the triangle $a b c$ under the enlargement of scale factor 1.8 and centre $c$.
(iii) Given that the area of triangle $a b c$ is $7.5 \mathrm{~cm}^{2}$, find the area of the image triangle.

## 2005

4 (c) (i) Draw a square opqr with sides 8 cm .
(ii) Draw the image of this square under the enlargement with centre $o$ and scale factor 0.25 .
(iii) Calculate the area of this image square.
(iv) Under another enlargement the area of the image of the square opqr is $100 \mathrm{~cm}^{2}$. What is the scale factor of this enlargement?

2004
4 (c) The triangle pst is the image of the triangle pqr under an enlargement with centre $p$.

$|p r|=4,|r t|=10$ and $|q r|=3$.
(i) Find the scale factor of the enlargement.
(ii) Find $|s t|$.
(iii) The area of the triangle pqr is 5 square units.

Find the area of the quadrilateral qstr.

2003
4 (c) (i) Construct a triangle $a b c$ in which $|a b|=10.5 \mathrm{~cm},|b c|=5 \mathrm{~cm}$ and $|a c|=8.5 \mathrm{~cm}$.
(ii) Choose any point $p$ that is outside the triangle and construct the image of $a b c$ under the enlargement of scale factor 0.4 and centre $p$.
(iii) Given that the area of this image triangle is $3.36 \mathrm{~cm}^{2}$, calculate the area of the original triangle $a b c$.

2002
4 (c) The triangle $a^{\prime} b^{\prime} c^{\prime}$ is the image of the triangle $a b c$ under an enlargement.
(i) Find, by measurement, the scale factor of the enlargement.
(ii) Copy the diagram and show how to find the centre of the enlargement.
(iii) Units are chosen so that $|b c|=8$ units. How many of these units is $\left|b^{\prime} c^{\prime}\right|$ ?
(iv) Find the area of triangle $a b c$, given
 that the area of $a^{\prime} b^{\prime} c^{\prime}$ is 84 square units.

## 2001

4 (c) (i) Draw a square with sides 7 cm and mark $o$, the point of intersection of the diagonals.
(ii) Draw the image of the square under the enlargement with centre $o$ and scale factor $\frac{1}{2}$.
(iii) Calculate the area of the image square.
(iv) Under another enlargement the area of the image of the square with sides 7 cm is $196 \mathrm{~cm}^{2}$.
What is the scale factor of this englargement?

## 2000

4 (c) The triangle $c d e$ is the image of the triangle $c a b$ under an enlargement with centre $c$. $|c a|=12,|a d|=9$ and $|c b|=8$.
(i) Find the scale factor of the enlargement.
(ii) Find $|b e|$.
(iii) The area of the triangle cde is 98 square units. Find the area of the triangle cab.


## 1999

4 (c) The triangle ocd is the image of the triangle $o p q$ under the enlargement, centre $o$, with $|p q|=4,|o p|=5$ and $|c d|=9$.
(i) Find the scale factor of the enlargement.
(ii) Find $|p c|$.
(iii) The area of the triangle ocd is 60.75 square units. Find the area of the triangle opq.


## 1998

4 (c) The triangle $x y z$ is the image of the triangle dgh under the enlargement, centre $o$, with $|d g|=8,|x z|=12$ and $|x y|=9$.

(i) Find the scale factor of the enlargement.
(ii) Find $|d h|$.
(iii) The area of the triangle $x y z$ is 27 square units. Find the area of the triangle $d g h$.

## 1997

4 (c) The triangle odc is the image of the triangle oab under an enlargement, centre $o$. $|c d|=9$ and $|a b|=15$.
(i) Find the scale factor of the enlargement.
(ii) If the area of triangle $o a b$ is 87.5 square units, find the area of triangle odc.
(iii) Write down the area of the region $a b c d$.


## 1996

4 (c) The triangle $x y z$ is the image of the triangle $a b c$ under the enlargement, centre $o$, with $|a b|=4$ and $|x z|=12$. The scale factor of the enlargement is 1.5 .
(i) Find $|x y|$.
(ii) Find $|a c|$.

(iii) If the area of triangle $a b c$ is
12.2 square units, calculate the area of triangle xyz.

| Answers |  |  |  |
| :---: | :---: | :---: | :---: |
| 2007 | 4 (c) (i) 2.8 | (ii) 2.5 | (iii) 35.28 square units |
| 2006 | 4 (c) (iii) $24.3 \mathrm{~cm}^{2}$ |  |  |
| 2005 | 4 (c) (iii) $4 \mathrm{~cm}^{2}$ | (iv) 1.25 |  |
| 2004 | 4 (c) (i) 3.5 | (ii) 10.5 | (iii) 56.25 square units |
| 2003 | 4 (c) (iii) $21 \mathrm{~cm}^{2}$ |  |  |
| 2002 | 4 (c) (i) 2 | (iii) 16 | (iv) 21 square units |
| 2001 | 4 (c) (iii) $12.25 \mathrm{~cm}^{2}$ | (iv) 2 |  |
| 2000 | 4 (c) (i) 1.75 | (ii) 6 | (iii) 32 square units |
| 1999 | 4 (c) (i) 2.25 | (ii) 6.25 | (iii) 12 square units |
| 1998 | 4 (c) (i) 1.5 | (ii) 6 | (iii) 12 square units |
| 1997 | 4 (c) (i) 0.6 | (ii) 31.5 square units | (iii) 56 square units |
| 1996 | 4 (c) (i) 6 | (ii) 8 | (iii) 27.45 square units |

